

# Evaluasi Usability dan Rekomendasi Perbaikan Desain User Interface Generator pada Software Product Line Engineering (SPLE) = Usability Evaluation and Recommendations for Improvement of User Interface Generator Design in Software Product Line Engineering (SPLE)

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## Abstrak

Perkembangan teknologi informasi telah mengubah cara hidup dan bekerja manusia, mendorong evolusi cepat dalam industri perangkat lunak yang kini mengandalkan alat pemodelan untuk merancang, menguji, dan menganalisis aplikasi sebelum dibangun. Di Laboratorium RSE Fakultas Ilmu Komputer Universitas Indonesia, dikembangkan PRICES-IDE yang mengimplementasikan paradigma Software Product Line Engineering (SPLE). Paradigma SPLE memungkinkan aplikasi perangkat lunak dengan menggunakan platform dan mass customisation, termasuk pemodelan user interface menggunakan Interaction Flow Modeling Language (IFML). IFML memungkinkan pengembang memodelkan interaksi pengguna secara visual dan menghasilkan kode frontend melalui User Interface Generator (UI Generator). Meskipun pengembangan lebih lanjut telah mengintegrasikan plugin Eclipse dengan UI Generator, belum ada pengujian usability terhadap developer dalam penggunaan IFML UI Generator. Penelitian ini mengevaluasi usability dari UI Generator pada PRICES-IDE yang meliputi proses menggambar model IFML, generate UI, dan running program menggunakan metode User-Centered Design (UCD) dan wawancara kontekstual untuk memahami perilaku, kinerja, dan kepuasan pengguna, serta memberikan rekomendasi desain alternatif. Desain antarmuka alternatif yang dihasilkan dari penelitian ini mencakup dari ketiga proses tersebut. Hasil rancangan desain antarmuka mencakup tutorial, FeatureConcept, DataType, tooltip, dan icon pada halaman palette yang menjawab hambatan yang didapat dari pendekatan metode UCD dan wawancara kontekstual. Terdapat saran untuk penelitian selanjutnya dalam melanjutkan pengujian usability IFML UI Generator.

.....The development of information technology has transformed the way people live and work, driving rapid evolution in the software industry, which now relies on modeling tools to design, test, and analyze applications before they are built. At the RSE Laboratory of the Faculty of Computer Science, University of Indonesia, PRICES-IDE has been developed, implementing the Software Product Line Engineering (SPLE) paradigm. The SPLE paradigm enables software applications using a platform and mass customisation, including user interface modeling using the Interaction Flow Modeling Language (IFML). IFML allows developers to visually model user interactions and generate frontend code through the User Interface Generator (UI Generator). Although further development has integrated an Eclipse plugin with the UI Generator, there has not yet been any usability testing on developers using the IFML UI Generator. This research evaluates the usability of the UI Generator in PRICES-IDE, including the processes of drawing IFML models, generating UI, and running programs using the User-Centered Design (UCD) method and contextual interviews to understand user behavior, performance, and satisfaction, and provides alternative design recommendations. The alternative interface designs produced from this research encompass all three processes. The interface design outcomes include tutorials, FeatureConcept, DataType, tooltips, and icons on the palette page addressing the barriers identified through the UCD method and contextual interviews. There are recommendations for further research to continue usability testing of the IFML UI Generator.